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ABSTRACT

Mechanisms, procedures, and evaluative techniques used for gathering data and returning relevant information to the appropriate personnel constitute an Instructional Management System (IMS) communication system (ComSys). Southwest Regional Laboratory has defined five such systems, two of which are described here, along with input and output procedures and evaluative criteria employed by the system. (JY)

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ABSTRACT

Evaluative data and operating procedures for creating the data base, for input, and for output are listed. Examples of forms are included together with a flowchart indicating communication and decision points.

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PROCEDURES FOR COMSYS 1 AND 2
FOR THE 1971-72 IMS TRYOUT

INTRODUCTION

During the 1971-72 tryout of the Instructional Management System (IMS), selected combinations of four input and three output modes are being used to gather data within the classroom, transmit that data to SWRL for processing, and send IMS output to the appropriate recipients. The four input modes are: (1) U.S. mail, (2) school mail, (3) on-site scanner, and (4) on-site keyboard. The three output modes are: (1) U.S. mail, (2) school mail, and (3) on-site printer.

The mechanisms, procedures, and evaluative techniques used for gathering data and returning relevant information to the appropriate personnel constitute an IMS communication system (ComSys). While five such systems, designated as ComSys 1 through 5 in Figure 1, are being investigated during the tryout, ComSys 1 and ComSys 2 are being used to initiate the tryout. This document describes input and output procedures, as well as evaluative criteria to be employed with these two communication systems.

Output Modes \ Input Modes	U.S. MAIL	SCHOOL MAIL	ON-SITE SCANNER	ON-SITE KEYBOARD
U.S. Mail	ComSys 1		ComSys 4	
School Mail		ComSys 2		
On-Site Printer			ComSys 3	ComSys 5

Figure 1. Matrix showing the combinations of input and output modes to be investigated during the 1971-72 tryout of IMS.

DEFINITIONS

ComSys 1: Input/Output Mode: The input and output mode for ComSys 1 is the United States Mail. Postage-paid, pre-addressed envelopes are provided for mailing pupil data from the classroom directly to SWRL. After processing the data, SWRL operatives mail reports directly to the schools.

ComSys 2: Input/Output Mode: The input and output mode for ComSys 2 is a combination of inter-school mail and courier. A SWRL courier is being utilized for purposes of the tryout. Teachers send pupil data to a district office via inter-school mail where it is collected by courier. Materials are delivered to the district office by courier, and then distributed to appropriate recipients by inter-school mail.

COMSYS 1 AND COMSYS 2 PROCEDURES

Procedures for Creating Data Base. ComSys 1 and ComSys 2 initiate at SWRL with the preparation of Class Record Sheets (see Figures 2A and 2B). Class Record Sheets are then delivered to participating teachers. After receiving the record sheets, teachers complete the form by listing pupil names, and, if desired, each pupil's group. Class Record Sheets are mailed to SWRL in postage-paid, pre-addressed envelopes provided by SWRL.

The IMS clerk receives all Class Record Sheets, has the information keypunched, and forwards the keypunched data to the data concentrator unit (DCU) operator. The 690/21 DCU operator uses Class Record Sheet data to produce the data base for IMS.

Input Procedures for Criterion Exercise Data. Necessary identification data is encoded and preprinted at SWRL on IMS Class Identification Sheets (see Figure 3) and Criterion Exercise Response Sheets (see Figures 4A and 4B). A list of IMS forms and the identification data preprinted on each at SWRL follows:

1. IMS Class Identification Sheet
    a. Teacher name and number
    b. School number
    c. District number
    d. Grade
    e. Class designator (AM or PM)
2. FYCSP Criterion Exercise Response Sheet
    a. Program number
    b. Unit number
    c. Criterion Exercise page number
3. LMS Criterion Exercise Response Sheet
    a. Program number
    b. Unit number

After encoding and preprinting, IMS forms are sent to participating teachers. Upon completing a unit, the teacher uses the pre-encoded scannable response sheets to administer Criterion Exercises and delete pupils who are no longer in class from the data base. Teachers using First Year Communication Skills materials must fill in the pupil code on each response sheet. Response sheets are then placed in a SWRL envelope in preparation for dispatch to SWRL.

The IMS Class Identification Sheet which is completed by the teacher serves two functions:

1. Identifying a set of Criterion Exercise Response Sheets. One cover sheet must be included with each set of materials for identifying the Criterion Exercise Response Sheets.
2. Updating the IMS data base. The Identification Sheet is used when the teacher wants to add a new pupil to the class. A separate form is used for each pupil being added to the data base.

The teacher sends the appropriate number of identification sheets with completed response sheets to SWRL.

When these materials arrive at SWRL they are delivered directly to the IMS clerk who is responsible for all clerical tasks related to the IMS tryout. Upon receipt of a set of materials, the IMS clerk preprocesses the response sheets by erasing stray markings. The IMS clerk then forwards response sheets and identification sheets to the Digitek 100DM operator.

When the scanning has been concluded, the operator sends the tape, response sheets, and identification sheets back to the IMS clerk. The IMS clerk forwards the tape and any identification sheets containing update information to the 690/21 DCU operator and files the response sheets.

When the 690/21 DCU operator receives a set of update information and scanner tape, he updates the data base by entering the requested changes via keyboard. [It should be noted that while update information is to be entered manually in the beginning stages of ComSys 1 and ComSys

2, provision has been made for transition to a completely automated system. This transition will be accomplished by using the optical reader to scan the IMS Class Identification Sheet for update information.]

The DCU operator then carries out the preliminary processing on the DCU, and returns the scanner tape to the IMS clerk. Next, he contacts the CPU and transmits the data. Transmission from DCU to CPU concludes the input sequence.

Output Procedures. After processing by the CPU, the output data are stored on a remote storage device at the CPU until the DCU operator requests that it be transmitted. Following transmission from the CPU to the DCU and the recording of the information on tape, duplicate reports are generated on SWRL's line printer and then sent to the IMS clerk.

After filing one set of reports, the IMS clerk collates the second set of reports with the appropriate response sheets. The IMS clerk then sends the collated set of reports and response sheets to appropriate recipients. Sending the reports and response sheets concludes the output sequence.

Evaluative Data. The data required to evaluate the operation of ComSys 1 and ComSys 2 can be classified under the following descriptors: (I) time and cost, (II) hardware failure, (III) software errors, and (IV) affective data.

ComSys 1. Evaluative data items within each category for ComSys 1 are listed below:

I. Time and Cost Data

1. The time and cost incurred in:

- Preparing materials for mailing to SWRL.

- Mailing the materials to SWRL.
- Preprocessing the materials.
- Scanning the response sheets.
- Preliminary processing by the 690/21.
- Transmitting data from the 690/21 DCU to the main CPU.
- Processing by the main CPU.
- Storing data at the main CPU site.
- Transmitting data from the main CPU to the 690/21.
- Generating reports on SWRL's line printer.
- Processing reports prior to mailing them to the recipients.
- Mailing the reports to the recipients.

2. SWRL's total cost and turnaround time.
3. The system's total cost and turnaround time.

II. Hardware Failure

1. The ratio of equipment failure to number of runs at SWRL.
2. The total time delay resulting from equipment failure at SWRL.
3. The ratio of equipment failure to number of runs at the main CPU site.
4. The total time delay resulting from equipment failure at the main CPU site.

III. Software Errors

1. The number of errors resulting from the scanning process.
2. The number of errors resulting from resident 690/21 software.
3. The number of errors resulting from resident main CPU software.

IV. Affective Data

1. Users' reactions to the IMS-specific tasks.

2. Users' reactions to the format and content of the reports.

3. Users' reactions to the total system.

ComSys 2. Using the same system of classification as used for ComSys 1, a number of evaluative data items to be used with ComSys 2 have been enumerated below:

I. Time and Cost Data

1. The time and cost incurred in:

- Preparing materials for sending to the district office.
- Sending materials to the district office.
- Transporting materials from the district office to SWRL.
- Preprocessing the materials.
- .
- . Same as for ComSys 1.
- .
- Generating reports on SWRL's line printer.
- Processing reports prior to sending them to the district office.
- Transporting the reports from SWRL to the district office.
- Distributing the reports to the recipients.

2. SWRL's total cost and turnaround time.

3. The system's total cost and turnaround time.

II.

. Same as ComSys 1.

IV.

SUMMARY

Table 1 and Figure 6 summarize the information relating to procedures used in ComSys 1 and ComSys 2. Table 1 presents a complete list of the forms, and delineates role responsibilities for completion of individual items on the forms. Figure 6 is a flowchart of ComSys 1 and ComSys 2 illustrating concurrent role responsibilities, parallel processes, and points of communication and decision-making.

Table 1. List of forms, their content, and the responsibility for 1971-72 tryout of IMS.

Form	Content	Responsibility
Class Record Sheet (Figures 2A and 2B)	1. District Name	1. SWRL
	2. School Name	2. SWRL
	3. Teacher Name	3. SWRL
	4. Program Name	4. SWRL
	5. Grade	5. SWRL
	6. Class (AM or PM)	6. SWRL
	7. Pupil Name	7. Teacher
	8. Pupil Group	8. Teacher
Criterion Exercise Response Sheets for FYCSP (Figure 4A)	1. Item Responses	1. Pupil
	2. Pupil Identification Number	2. Teacher
	3. Delete a Pupil	3. Teacher
	4. Program Number	4. SWRL
	5. Unit Number	5. SWRL
	6. Page Number	6. SWRL
Criterion Exercise Response Sheets for LMS Program (Figure 4B)	1. Page Number	1. Teacher
	2. Item Responses	2. Teacher
	3. Delete a Pupil	3. Teacher
	4. Program Number	4. SWRL
	5. Unit Number	5. SWRL
Pupil List for LMS Program (Figure 5)	1. Pupil Name	1. Teacher
IMS Class Identification Sheet (Figure 3)	1. Teacher Name	1. SWRL
	2. Grade	2. SWRL
	3. Format Number	3. SWRL
	4. Class	4. SWRL
	5. District Number	5. SWRL

Form	Content	Responsibility
IMS Class Identification Sheet (Figure 3)	5. District Number	5. SWRL
	6. School Number	6. SWRL
	7. Teacher Number	7. SWRL
	8. Change Indicator	8. SWRL
	9. Add a Pupil	9. Teacher
	10. Date	10. Teacher

Figure 2A: Sample FYCSP Class Record Sheet

IMS CLASS RECORD SHEET
FYCSP

Please type or print the names of all pupils in your class. If you have grouped your class for reading, please designate each pupil's group assignment.

TEACHER: _____ SCHOOL: _____

DISTRICT: _____ GRADE_____ CLASS: A.M._____ P.M._____

PUPIL CODE	NAME	GROUP NO. (OPTIONAL)	
6			01
5			02
5-6			03
4			04
4-6			05
4-5			06
4-5-6			07
3			08
3-6			09
3-5			10
3-5-6			11
3-4			12
3-4-6			13
3-4-5			14
3-4-5-6			15
2			16
2-6			17
2-5			18
2-5-6			19
2-4			20
2-4-6			21
2-4-5			22
2-4-5-6			23
2-3			24
2-3-6			25
2-3-5			26
2-3-5-6			27
2-3-4			28
2-3-4-6			29
2-3-4-5			30

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Figure 2B: Sample LMS Class Record Sheet

IMS CLASS RECORD SHEET
LMS PROGRAM

Please type or print the names of all pupils in your class. If you have grouped your class for reading, please designate each pupil's group assignment.

TEACHER: _____ SCHOOL: _____

DISTRICT: _____ GRADE: _____ CLASS: AM_____ PM _____

		NAME	GROUP NO. (OPTIONAL)
LIST # 1	1		
	2		
	3		
	4		
	5		
	6		
	7		
	8		
	9		
	10		
LIST # 2	11		
	12		
	13		
	14		
	15		
	16		
	17		
	18		
	19		
	20		
LIST # 3	21		
	22		
	23		
	24		
	25		
	26		
	27		
	28		
	29		
	30		

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IMS CLASS IDENTIFICATION SHEET

TEACHER Jacobs

PRINT THE NEW PUPIL'S LAST NAME FIRST, SKIP A BOX, THEN PRINT HIS FIRST NAME IN THE BLOCKS PROVIDED BELOW.

PUPIL NAME:

PRINT THE DATE OF TESTING OR ADDING A NEW PUPIL IN THE BLOCKS BELOW.

DATE: MONTH DAY YEAR

		19	
JAN	0		71
FEB	1		72
MAR	2		
APR	3		
MAY	4		
JUN	5		
JLY	6		
AUG	7		
SEP	8		
OCT	9		
NOV			
DEC			

IF A NEW PUPIL IS TO BE ADDED TO THE CLASS, MARK THIS BOX →

MARK THE NEW PUPIL'S GROUP NUMBER (OPTIONAL)

1
2
3
4
5
6

PUPIL CODE

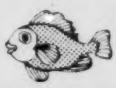
1 2 3 4 5 6

DELET

FYCSP
UNIT 2

1

PUPIL NAME _____

	1	sit	Sis	is
	2	am	in	on
	3	see	meet	Mit
	4	is	Sis	it
	5	sits	sit	meets
	6	eet	meet	it
	7	am	Mat	at
	8	sit	it	eet
	9	at	m	s
	10	it	at	eet

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LIST NUMBER

MACMILLAN
BANK STREET

UNIT

1

IMS
CRITERION EXERCISE
RECORD SHEET

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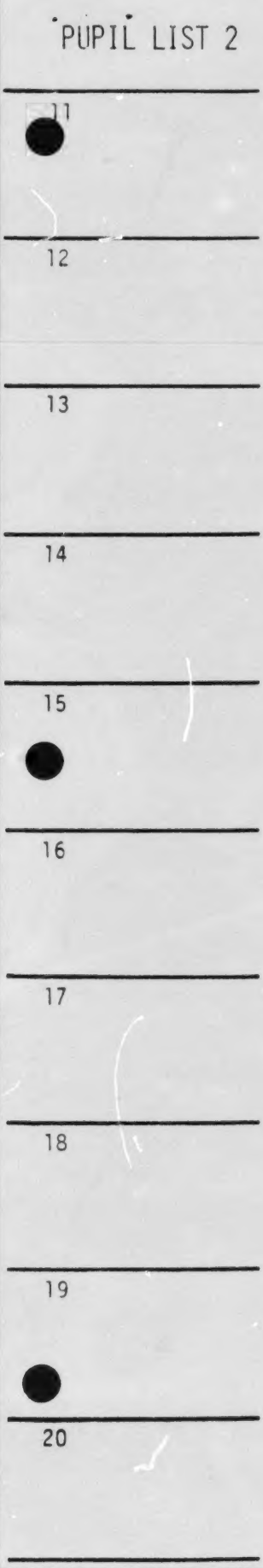
Figure 5: Sample Pupil List



MARK THE BOX
ONLY IF THE PUPIL
RESPONDS INCORRECTLY

Figure 6: Flowcharts for ComSys 1 and 2

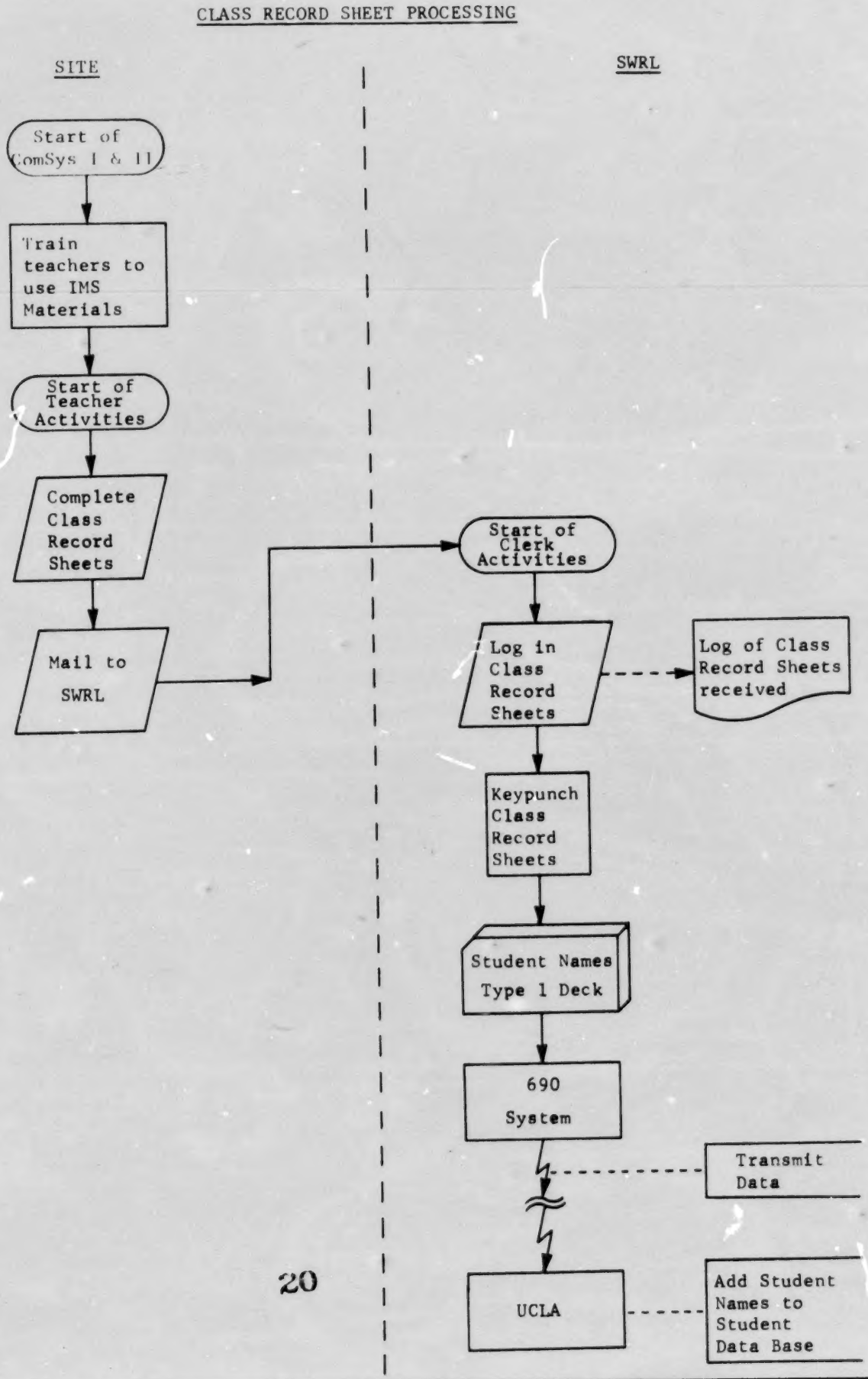


Figure 6. (continued)

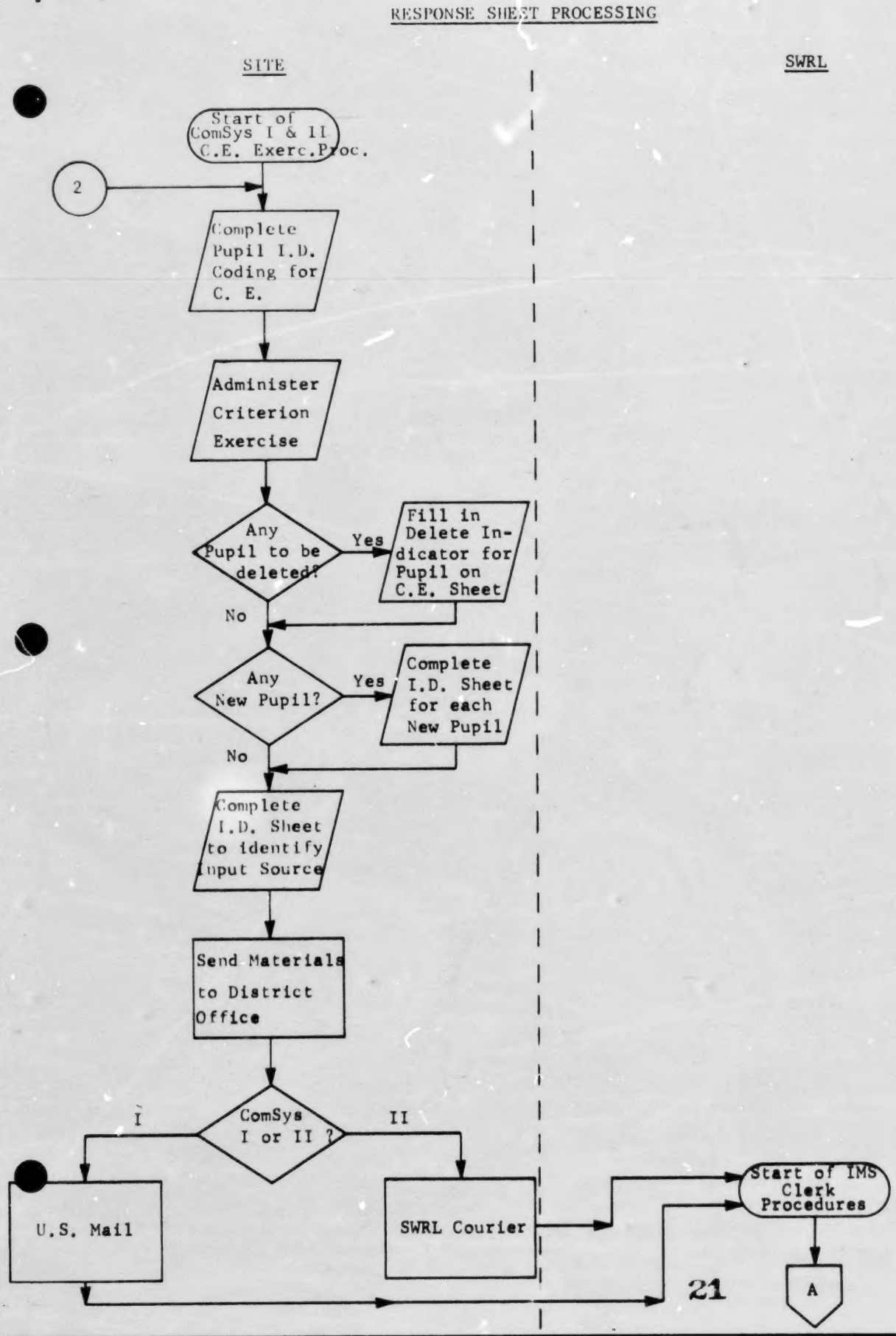


Figure 6. (continued)

RESPONSE SHEET PROCESSING

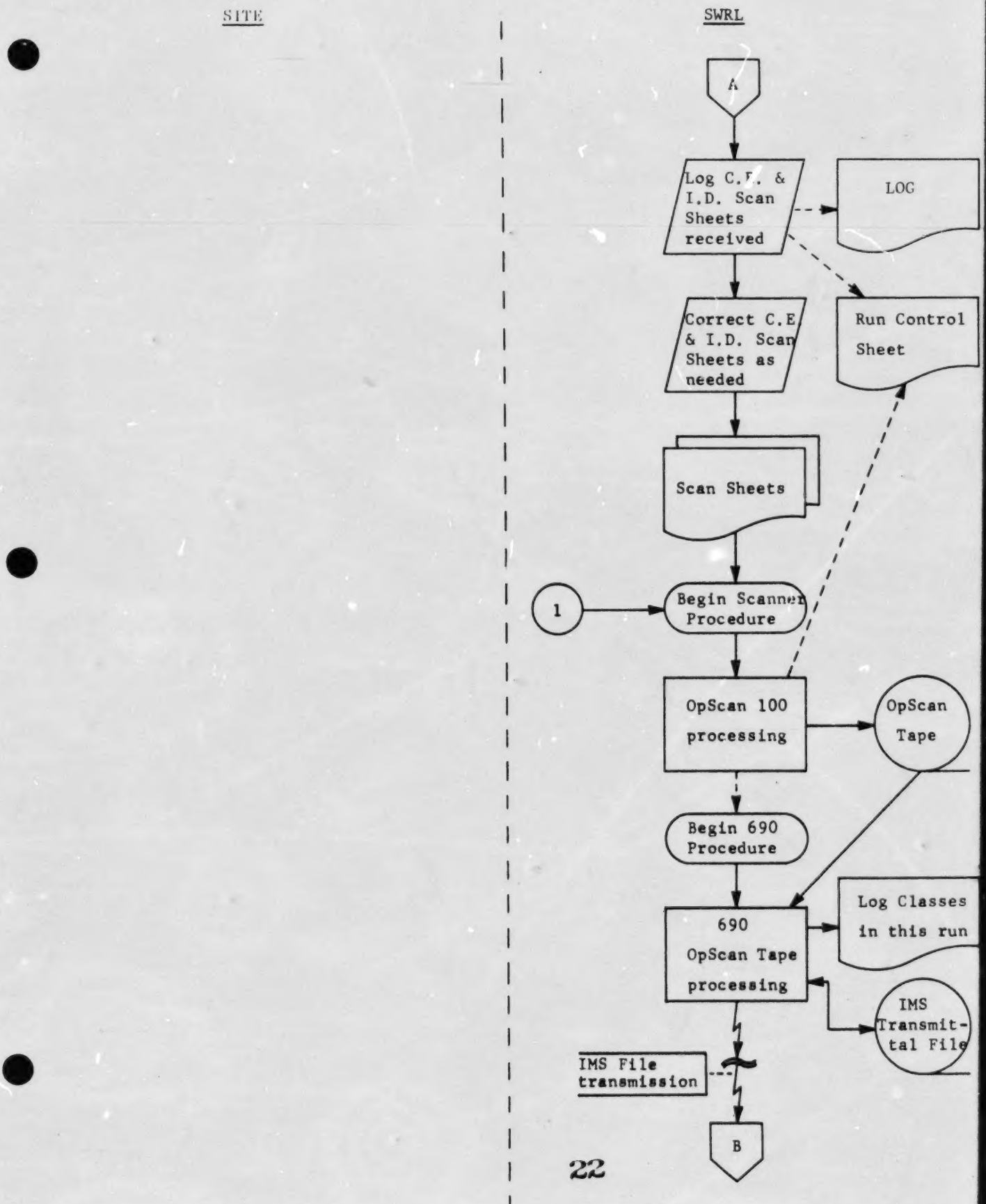


Figure 6. (continued)

RESPONSE SHEET PROCESSING

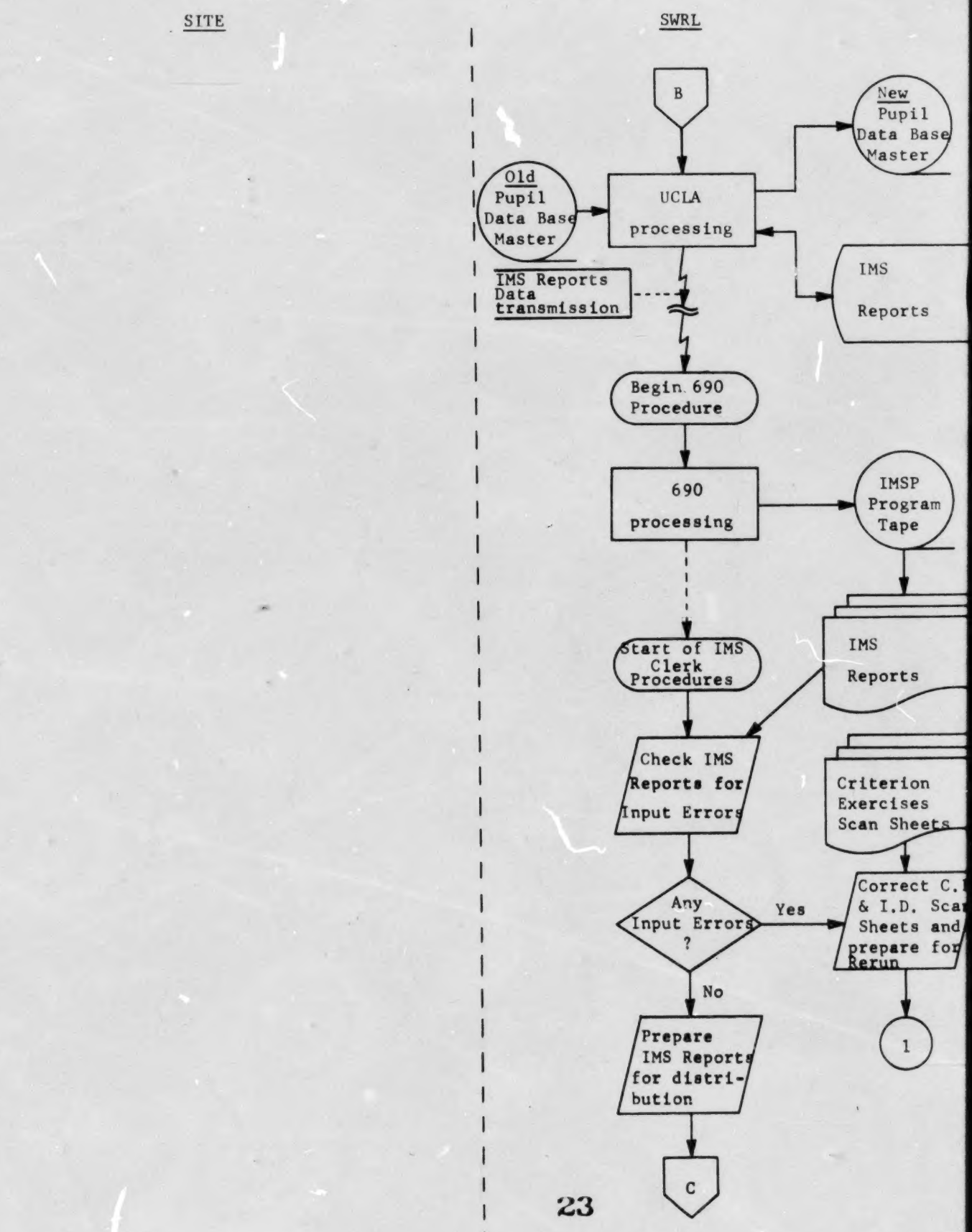


Figure 6. (continued)